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## CURRENT PERIODICALS.

In *Scientia* for January, 1919, the article on Greek influence in the development of Hindu mathematics, by G. R. Kaye, may not unlikely be a grievance against the oppressor, in that it displaces a lustrous jewel in the crown of Hindu culture. It challenges the hitherto undisputed dictum that with no aid, or with little outside aid at all, the inhabitants of the great peninsula attained considerable distinction as exponents of mathematical science. Kaye now congratulates mathematical historians on the scepticism with which they have regarded these assertions. He is cruel enough to present claims and conclusions in the simple forms: the Hindus invented our notation (probably untrue); and became the greatest calculators of antiquity (does not entirely agree with the facts); as certain propositions are for the first time met with in Hindu works, therefore the Hindus must have discovered them (pure romance). The author examines one by one the partisans of the Hindu view, demolishes or modifies most of their assertions, and then proceeds along lines of his own choice. He finds every proposition in the Hindu works of a period in the same or slightly varying form in the works of the Greeks, and nowhere in the oldest Hindu literature. The ancient Hindu mathematicians themselves are shown to have looked down with scorn on their predecessors. Brahmagupta, for instance, claims no originality and even indicates his sources of information. Kaye seems to have hopes that some day or other we shall discover a copy of the lost works of Diophantus, or of Hypatia. The matter will then be at rest.—Sir Oliver Lodge takes "Ether and Matter" once more as his subject. He traces the steps by which electricity came ultimately to be considered as the raw material out of which matter is composed, how the material atoms may be explained with the help of electrons, how electric charges are composed of modified ether, how we may regard all kinetic energy as belonging to matter whether atomic or corpuscular, and all static energy to the unmodified and universal ether. Coexistence and interaction form the fundamental joint quality of matter and ether. "The potentiality of interaction, and often the conspicuous reality of it, everywhere prevails and constitutes the whole of our purely mundane

experience."—G. Levi takes as his topic the life of the isolated elements of the organism. He describes the work of Harrison, Born, Giardina, W. and M. Lewis, and congratulates morphology on its possession of a new technique. "For the first time we are able to analyze the structure of the living protoplasm of higher organisms, to follow its transformations, and to determine the behavior of protoplasm under artificial stimuli." He believes that the culture methods of investigation will have a decisive influence upon the future of investigations upon the structure of cells and tissues.—P. Bellezza's note on the phonology of the wider Rome, of Romania, explains how it is proposed to trace the determining causes of the evolution products of the transformation of the Latin tongue in the various countries through which it spread and exercised its potent influence. For this purpose it is necessary to summon to our aid the assistance of more than one science of which the older grammarians and etymologists had never heard or dreamed. The laws of phonology have their physiological basis. Phonetic phenomena are produced and remain identical as long as the conditions remain unchanged. The absolute uniformity of such laws continues until some psychic element intervenes, such as is afforded by contact with races speaking other tongues. This brings us to the "dead point" of phonetic laws. By the combined aid of physiology, ethnology, geography, and history, it is hoped that considerable light will be thrown upon questions that have perplexed generations of students of linguistics.

In *Scientia* for February, 1919, José M. Plans writes on the introduction of the method of perturbations into general mechanics. Work in this direction is associated with the names of Kobb, Moulton, and Behrens. He indicates how in a limited number of cases the classical method of celestial mechanics may be applied to general mechanics.—Alexandre Moret writes on Egyptian hieroglyphics, a subject which has enthralled many men of his race from the days of Champollion.—E. Claparède discusses the new educational principles which are to transform our schools. The old system under which the social instincts were suppressed is doomed: we are to have democratic institutions in which internal discipline takes the place of a discipline imposed from without, the key-note being "self-government." We shall have no teachers who are not psychologists, and when we say that the children of the future are to do nothing but what they like, perhaps it should be paraphrased into: they

will do with all their heart what they are at because they will want to do it.

In *Scientia* for March, 1919, we are reminded that J. L. E. Dreyer has a prescriptive right to the handling of any new material concerning Tycho Brahe. His article on the place of the famous astronomer in the history of his science is no doubt suggested by a discovery made in the course of preparing a new and complete edition of the manuscript books of Tycho's nightly observations. The discovery refers to what has always been "an extraordinary riddle." What the puzzle is may be found in the article, to which we refer the reader.—Luigi de Marchi describes the various methods, deduced from general principles, which are used for representing the surface of the earth. The various types of projections are carefully explained and their relative values indicated. From these he passes to those types which combine the merits of two or more of the normal types, and involve the use of artifices and constructive adaptation, e. g., "polyconical projections, on one of which is constructed the English War Office map."—Ingvar Jörgenson and W. Stiles discuss the present condition of the problem of the assimilation of carbon—a matter, they claim, of general interest to humanity, seeing how the solution must affect human needs, from the point of view of plant physiology and, when the time comes, from its connection with the utilization of the radiant energy of the sun. A careful account is given of recent research on the subject, and as the general outcome of their critical examination of existing claims they conclude that there is still "a very long row to hoe" before success can be said to be in sight.—L. Houllevigue discusses the future of pure science. In his own country he foresees that money, men, and methods, all of which are essential for the future of pure science, will go to the development of the industries. He has no panacea to offer, but he closes his pessimistic outlook with a call for money enough to keep body and soul together in those engaged in pure research, for a careful selection of the right men to carry on the good work, and for the systematic organization of the work of the future.—R. Assagioli calls the attention of European psychologists and alienists to the work of Morton Prince and Boris Sidis, and to the discussions between them and the disciples of Freud, which have appeared in the *Journal of Abnormal Psychology* and elsewhere.